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ABSTRACT

The course of study in farm management was planned primarily for use by instructors in farm training, production agriculture, and continuing education programs but could also be adapted for use in secondary level vocational agriculture programs. Written for a minimum of 20 hours of classroom instruction, the course material is supplemented by an outline of individual instruction to be conducted by the teacher during monthly visits to the enrollee's farm. Management procedures to be taught cover such areas as financial recordkeeping and analysis, income tax preparation, long range crop and livestock planning, and control of capital resources. Worksheets, inventory forms, sample ledgers, and reference lists are appended. (KH)

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A COURSE OF STUDY IN FARM MANAGEMENT

Walter T. Bjoraker
Editor

Instructional Series No. 4

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A SUGGESTED COURSE OF STUDY

IN

FARM MANAGEMENT

Purpose

This suggested course of study was prepared primarily for use in the teaching of Farm Management in the Wisconsin Vocatinal, Technical and Adult Education VTAE system. It is intended for use by:

1. Farm Training Program Instructors[1]
2. Production Agriculture Instructors
3. Continuing Education Program in Agriculture Instructors[2]
4. Other personnel associated with Agricultural education programs.

Teachers of vocational agriculture in secondary schools in Wisconsin may also find this suggested course of study useful in teaching their students. Furthermore, any social studies teacher in either secondary or post-secondary schools may find some value in this course of study as a reference in their classes.

While this document is mainly intended to serve the above mentioned instructors, it can also be used for program planning, evaluation, reference and other general uses by persons; such as, agriculture coordinators or chairmen in the VTAE system, consultants in agricultural education on both the VTAE and Department of Public Instruction (DPI) staffs, student services and guidance counselors in the VTAE and DPI systems respectively, Local Vocational Education Coordinators, high school principals, public school district administrators in the DPI system, field service and/or instructional services administrators or assistant directors in the VTAE system, VTAE district directors, teacher trainers in agricultural education departments in colleges and universities and anyone else associated or interested in farm management and/or agricultural education.

Flexibility has deliberately been built into the suggested course of study so that modifications can easily be made by persons using this course of study. They can add or delete material to either lengthen or shorten the suggested time sequence to meet specific program demands and individual student needs.

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[1]Called Young Farmer Instructors prior to July 1, 1972.

[2]Called Adult Farmer Instructors prior to July 1, 1972.

OBJECTIVE

To develop basic oncepts and tools to assist students in farm training and farm operations to improve their decision making ability in the operation and management of their farm businesss, consistent with their goals and objectives.

CLIENTELE

This course of study was prepared primarily for use by instructors in farm training, production agriculture and continuing education programs in the VTAE system but could adlso be adapted to students enrolled in high school programs.

TIME

This course of study was written to fit a minimum of twenty hours of formal classroom instruction. Relating these course materials to individual on-farm instruction should be conducted on a one-to-one teacher-student basis on the enrollee's farm throughout the year.

EVALUATION

Students in the VTAE system generally are not formally graded. Evaluation of this course of study should be based on the extent to which the individual student's financial management and production efficiency goals are attained.

Secondary school students can best be evaluated by traditional quizes, exams, student reports, student projects, supervised farming programs and/or occupational experiences and other relevant criterion.

UNITS OF INSTRUCTION

Classroom

Introduction to Farm Management

Farm Records and Record Analysis

Farm Financial Records and Analysis

Forward Planning

Control of Capital Resources

Areas for On-The-Farm Instruction

Enrollment in the VTAE Farm Training Program

Farm Survey

Crop Evaluation

Evaluation of Feed Analysis and Balancing Rations

Preparation of an Income Tax Estimate

Livestock, Crop and Equipment Inventories

Income Tax Preparation

Completion and Interpretation of the Farm Business Analysis and Profit-Loss Statement

Projection of Crop and Field Plans and Relation to Livestock Needs

Evaluation of the Net Worth Statement

Short and Long Range Planning

Summer Trouble Shooting

UNIT OBJECTIVES

1. To have the farmer motivated so he will adopt the concepts and tools useful in making farm management decisions.

2. To have the farmer understand basic economic concepts so that he can use them to solve problems of business and financial management.

3. To have the farmer able to keep and effectively use farm records as a diagnostic tool.

4. To develop an appreciation and understanding of the values of the financial management framework in the farm business:

   a. To have the individual gather and evaluate his financial information and performance.

   b. To develop a desire in the individual to plan the control of his resources in a logical sequence.

   c. To have the individual implement a plan of action based on sound farm business and financial management decisions.

A. CLASSROOM INSTRUCTION[1]

I. Introduction to Farm Management

A. Farm management
   1. Definition
   2. Value of Farm management ability
   3. Characteristics of farming that place demands on management ability
      a. Depends on biological relationships
      b. Factors of production are generally highly interrelated
      c. fixed costs are usually high
      d. Farming is similar to other businesses
   4. Role of the manager
      a. Problem and scope of the management function
         (1) What to produce
         (2) How much to produce
         (3) How to produce
      b. Administration
         (1) Types of ownership
         (2) Acquiring the resources
         (3) Supervision of labor
         (4) Operational timing
         (5) Record keeping
         (6) Marketing
      c. Management, a continual process
         (1) Goals and values
         (2) Control-decision making
            (a) Make decisions
            (b) Take the risk
            (c) Deal with the consequences
            (d) Evaluate the decision
   5. The decision making process - steps in the decision making process

B. Some economic principles and their relation to farm management
   1. Farmers work with resources, factors or inputs to produce a commodity, product or output
   2. Relationship of input to output
      a. The production function
      b. Marginal input and output
      c. Law of diminishing returns
   3. Costs of inputs
      a. Fixed costs
      b. Variable costs
      c. Relation of costs to profit or maximum revenue
      d. Risk and uncertainty
      e. Making decisions involving time
         (1) Compounding interest
         (2) Discounting

[1]Instructor should develop appropriate overheads to motivate class.

II. Farm Records and Records Analysis

A. Requirements
   1. Complete
   2. Accurate
   3. Used

B. Uses of farm records
   1. Service tool
      a. Income tax and social security
         (1) Filing income tax and social security reports
         (2) Income tax management
      b. Provide basis for types of equitable business arrangements
         (1) Family operating agreements
         (2) Partnerships
         (3) Corporations
      c. Credit
         (1) Need records to complete for credit dollars
         (2) Loan evaluation
            (a) Profitability
            (b) Liquidity
            (c) Solvency
         (3) Analyzing financial structure of farm firm
   2. Diagnostic tool - To determine the absolute and relative profitability of the farm business
      a. Identify strengths
      b. Identify weaknesses
         (1) Organizational
         (2) Operational
   3. Indicator of progress
      a. Business
         (1) Measure change in size, production, and efficiency factors
         (2) Measure actual performance in comparison with planned performance
      b. Financial
         (1) Measure change in the financial condition of farm and family
         (2) Measure actual performance with planned performance
   4. Forward planning - short and long term
      a. Cash flow
         (1) Quarterly or monthly basis
         (2) Plan cash flow ahead
         (3) Compare actual performance with planned performance
      b. Budgeting
         (1) Short range
            (a) Scheduling
            (b) Purchase of certain kind of output
            (c) Costs of various alternative kinds of input
            (d) Short term credit needs and repayment capacity
         (2) Long range - More depth, goes into total farm budget
            (a) Kind of enterprise
            (b) Size of enterprise
            (c) Size of business
            (d) Capital generation, long term, credit needs

C. Types of records needed
   1. Inventory (Problem of $ Vluation and Measurement)
      a. Land and improvement associated with land
      b. Buildings and improvements
      c. Livestock
         (1) Breeding
         (2) Market
      d. Feed
      e. Supplies
   2. Financial statement (ties with inventory)
      a. Assets
      b. Liabilities
   3. Income and expenses - should be categorized correctly
   4. Profit and loss
   5. Depreciation and other tax
   6. Production
      a. Livestock
      b. Crop
   7. Feed utilization
      a. Farm
      b. Enterprise
   8. Individual enterprise - to find out where a problem lies
      a. Livestock by kinds
      b. Crop by kinds
   9. Farm and enterprise labor utilization (is becoming scarce and more expensive resource)
      a. Operator
      b. Hired
      c. Family
      d. Social security and tax
   10. Individual machine
   11. Experimental
      a. Livestock enterprises
      b. Crop enterprises
   12. Cash flow
      a. Projected
      b. Actual
   13. Internal non-cash transactions
      a. Charge at opportunity cost or production cost--whichever is highest

D. Keeping farm records
   1. Wisconsin Farm Records Book
   2. Wisconsin Six Year Inventory and Depreciation Schedule
   3. Wisconsin Crop Record Book
   4. Agricultural Records Cooperative, Electronic Farm Records (ARC-EFR)
   5. Agri-Fax - Production Credit Association (PCA) Electronic Farm Records
   6. Farm Bureau Electronic Farm Records, Freddie the Computer
   7. Bank
      a. Check accounting
      b. Rec-chek
      c. Other
   8. Other miscellaneous record books

E. Analysis and interpretation - using records for farm management decisions

1. What to measure
   a. Size
      (1) Crop acres
      (2) Gross income
      (3) Livestock units
      (4) Labor utilized effectively
      (5) Total investment
   b. Productivity
      (1) Livestock
      (2) Crop
      (3) Labor
   c. Efficiency
      (1) Farm
      (2) Livestock
      (3) Crop
      (4) Labor
      (5) Capital
   d. Organization
      (1) Inputs
      (2) Outputs
2. Farm operator concerned about
   a. As a family man
      (1) Providing a decent living for his family
      (2) Position on income scale in comparison to other occupations
   b. As a businessman
      (1) Returns to land, labor, capital and management
      (2) Competitive position compared to other farmers
3. Measures of performance - Financial
   a. Gross cash farm income
   b. Net cash accumulated at end of year
   c. Net cash farm operating income
   d. Profit and loss
   e. Net farm income (Appendix B - Item 1)
   f. Labor and management earnings (Appendix B - Item 1)
   g. % return per $ invested = return to farm capital ÷ owner's average farm investment
   h. % return to owner's net worth = return to owner's net worth ÷ owner's average net worth
   i. Asset turnover in years = average farm investment ÷ value of farm production
   j. Net profit margin = return to farm capital ÷ value of farm production
   k. Current ratio = current liabilities ÷ current assets
   l. Liability asset ratio or % indebtedness = total farm liabilities ÷ total farm assets
   m. Current and intermediate liability/asset ratio = (Current + intermediate liabilities) ÷ (Current assets + intermediate assets)
   n. Change in net worth = previous year's net worth minus this year's net worth

4. Measures of performance - Business
   a. Four key factors on a dairy farm
      (1) Crop acres (size)
      (2) Crop value per acre (productivity of crops)
      (3) Pounds of milk sold per cow (productivity of livestock)
      (4) Returns/$100.00 feed fed (efficiency of livestock)
   b. Other important factors - look at financial and production goals for type of farm relevant to you
   c. What are farms actually doing? Look at recent record summaries covering relevant factors relating to your type of farm relevant to you

III. Farm Financial Records and Analysis

A. Introduction
   1. Modern farms are dynamic and highly competitive
   2. Changing resource mix in modern farming
      a. Capital and management requirements are increasing
      b. Land stable
      c. Labor declining
   3. Farmers' adjustment to changing resource mix (Appendix C - Fig. 1)
      a. Capital oriented farmer
      b. Labor oriented farmer
   4. Implications to the individual farmer
      a. Where am I
      b. Where do I want to be
         (1) Review development options
            (a) Poverty and low resource farmer (Appendix C - Fig. 2)
            (b) The skilled labor farmer
            (c) The inbetween, high debt farmer
                High debt
                Adequate size
                Needs management guidelines
            (d) The skilled manager farmer
         (2) Appraising development options (Appendi.. C - Fig. 3)
      c. How do I get there
   5. How to move ahead
      a. Develop plan
      b. Secure financing
      c. Implement plan of monitor progress
   6. Re-outline and re-emphasize procedure
      a. Analyze
      b. Plan
      c. Control

B. Financial management framework
   1. Financial management decision framework
      a. Analyze
      b. Plan
      c. Control
      d. Continually analyze, plan, control (Appendix C - Fig. 4)
   2. Business objectives and their implications
      a. Profitability
      b. Liquidity

To Achieve the above objectives, answer:
(1) How many assets to acquire
(2) How fast
(3) Form of acquisition
(4) Method of financing

c. Solvency

3. Analytical and planning tools
   a. Analytical tools
      (1) Financial statements
      (2) Profit and loss statements
      (3) Cash flow statements
          (Appendix D - Worksheet MIECF)
      (4) Analysis forms and standards
   b. Planning tools
      (1) Annual cash flow budget
      (2) Long range, complete budget, partial budget
      (3) Transitional budget
   c. Control tools
      (1) Annual cash flow projections
          (Appendix D - Worksheet MIECF)
      (2) Comparison of projections and actual records

C. Collecting financial information
   1. Financial records
      a. Financial statement
         (1) Selecting a classification system (see reference, financial statement)
         (2) Categorization and valuation
             (a) Assets
             (b) Liabilities
             (c) Net worth
      b. Profit and loss statement - considered accrual basis (Reference-Cash flow statement and financial summary and analysis)

D. Analysing and improving financial performance
   1. Introduction
      a. Analysis compared to standards
         (1) Historical records
         (2) Comparison of like operations
         (3) Budget and/or projections
   2. Tests of business profitability
      a. Return to total investment and associated measures
         (1) Standard return on investment (goals)
         (2) Comparison of returns on investment
             (Appendix C - Tables 1 & 2)
      b. Asset turn over
         (Appendix C - Table 3)
      c. Return to net worth and concept of leverage
         (1) Calculation of return on net worth
         (2) Comparison of returns on net worth at varying interest rates
             (Appendix C - Table 4)
             (a) Concept of leverage

3. Strategies for improving business profitability
   a. Improved production management
      (1) Improved production efficiency of enterprises
      (2) Improved combination of enterprises
      (3) Fuller use of fixed facilities and equipment
      (4) Improved fixed asset replacement policies
   b. Improved marketing management
   c. Improved financial management
      (1) Changing the combination of assets utilized
      (2) Changing sources and combinations of liabilities
4. Tests of debt servicing ability (financial liquidity)
   a. Past debt servicing record
   b. A forward look: current ratios, borrowing liquidity and debt servicing projections
      (Reference - financial statement)
5. Tests for financial solvency
6. Strategies for improving the financial soundness of business
   a. Improving business liquidity or technical solvency
   b. Total solvency
   c. Considerations in selecting profitability and financial soundness
7. Comparative analysis
   (Reference - financial summary and analysis)
8. Where to from here?
   (Appendix C - worksheet ID)

IV. Forward Planning

A. Long range planning
   1. Introduction
      a. Answer the following questions
         (1) Is this a profitable adjustment over time?
         (2) Is this the most profitable adjustment?
         (3) Will additional investment repay itself in a timely fashion?
   2. The partial budget
      a. Purpose
      b. Sample problem
         (Appendix D - worksheet P.B.)
   3. The complete budget
      a. Purpose
      b. Sample problem
         (Reference - Long range plan - Cir. 689)

B. Transition and annual planning
   1. Definition, purpose and use
   2. Transitional planning procedure - a detailed look)
      a. Production and investment planning
      b. Sample problem
         (Reference - Transitional and annual planning--Supporting schedule 690, Financial statement and Summary Cir. 691 & 690)
   3. Annual planning procedures

C. Cash Flow
   1. Introduction and purpose
   2. Two types of cash flow
      a. Entire business
      b. Segment of business (specific enterprise)
   3. Actual and projected cash flow statements
      a. Farm example
         (Reference - Farm profit and loss statement)
         (Appendix D - worksheet MIECF)
   4. Uses of a projected cash flow statement

V. Control of Capital Resources

A. Define
   1. Land
   2. Labor
   3. Capital

B. How capital resources are controlled
   1. Earnings, savings, etc.
   2. Leasing agreements
   3. Acquisition by purchase
      a. Types of ownership
   4. Credit
   5. Marriage and/or inheritance
   6. Custom work

C. How Implemented
   1. Earnings and savings
      a. Distribution
         (1) Land
         (2) Labor
         (3) Capital
      b. Flexibility of resources
   2. Leasing
      a. Types
         (1) Machinery leases
         (2) Livestock share lease
         (3) Land
            (a) Cash lease
            (b) Crop-share lease
   3. Acquisition (Purchase)
      a. Types of ownership
         (1) Sole ownership
         (2) Tenancy in common
         (3) Joint tenancy (Right of Survivor)
      b. Contracts
         (1) Land contract
            (a) Advantages and disadvantages
         (2) Installment contracts
            (a) Livestock
            (b) Machinery
      c. Resource combinations
         (1) Determining types of business

(a) Dairy
(b) Meat animal production
(c) Cash crops
(d) Poultry

d. Acquiring the farm
(1) When to purchase
(2) Why purchase
(3) Size of farm
(4) Location
(5) Production evaluation
(6) Legal aspects

4. Credit
a. Types of credit
(1) Short term
(2) Intermediate term
(3) Long term
b. Sources
c. Financial evaluation
(1) Profitability
(2) Liquidity
(3) Solvency

5. Marriage and/or inheritance

6. Forms of business organizations
a. Sole proprietor
b. Partnership
c. Corporation
(1) Subchapter S (small business)
(2) Subchapter C (public)

B. ON THE FARM INSTRUCTION

The on farm instruction is vital to the success of instruction farm management. The items under the months are suggestions only. It may be advantages to "backshift" some of the analysis by starting earlier in the fall to secure the necessary data. Early analysis will aid the management decision on such items as fertilizers, crop varieties, etc. which are in reality made quite some time prior to the planting season.

I. Visit (July or August)

A. Teacher objectives:
1. Contact farm family for enrollment in the VTAE Farm Training Program

B. Farm operator objectives:
1. Operator will be able to determine if the VTAE Training Program is desirable for him
2. Operator will be able to explain the VTAE Training Program to others

C. On farm topic: (Getting to know the farm operator, farm family, and the farm operation)
1. Introduce yourself
2. Farm training program objectives (Appendix E - Item 1)
3. Present a copy of planned classroom instruction
4. Offer enrollment to farm management trainee
5. Plan for next visit (time and topic)

D. Assignment:
1. Farm management operator will fill out the "Farm Survey Sheet" (Appendix E - Item 2)
2. A copy of the "Farm Training Program Objectives"
3. A copy of the planned "Classroom Topical Instruction"
4. A copy of the "Farm Survey" form

II. Visit (August - September)

A. Teacher objective:
1. Review the farm survey form with the farm operator in order to determine the isze and scope of the farm operation and identify some general problem areas in the basic physical input needs to maximize farm production outputs.

B. Farm operators objectives:
   1. The operator will be able to fill out the farm survey form.
   2. Upon the completion of the Livestock Needs and Farm Potential forms, the operator will be able to evaluate his livestock needs in relationship to his farm's potential and determine the crop production, fertility, and storage needs.

C. On farm topic:
   1. Crops raised in relationship to livestock requirements
   2. Purchased input supplies
   3. Feed storage needs

D. Assignment:
   1. Depends on present farm and record keeping system, but encourage the farm operator to think about how he might improve his present record keeping habits and system.
   2. Encourage the farm operator to have an aerial map of his farm operation and S.C.S. farm plan.

E. References:
   1. Livestock needs and farm potential form (Appendix E - Item 4)
   2. Dairy herd requirements reference sheet for livestock needs and farm potential form (Appendix E - Item 5)
   3. Livestock budget enterprise guides (Wisconsin Farm Enterprise Budgets: Dairy, Beef, Swine, Sheep)
   4. Crop Budget Enterprise Guides (Wisconsin Farm Enterprise Budgets: Crops) (Farm Management Manual) University of Illinois
   5. Machinery cost guide
   6. Six Years Inventory and Depreciation Schedule
   7. Any other depreciation schedules available
   8. Wisconsin Crop Record Book
   9. Wisconsin Farm Record Book
   10. Electronic Farm Records System flyers

F. Equipment
   1. Adding machine or electronic computer

III. Visit (September - October)

A. Teacher Objective:
   1. Do crop evaluation

B. Farm Operator Objectives:
   1. The operator will realize a need for forage sampling and yield checks
   2. Operator will know how to take yields checks and forage samples

C. On Farm Topic: Crop Evaluation
   1. Yield checks
      a. Corn grain
      b. Silage
      c. Hay

2. Forage sampling for analysis
3. Review soil sampling procedures

D. Assignment:
1. Fill in crop record book
2. Send in feed samples
3. Determine the amount of feeds fed
4. Take soil samples

E. References:
1. Wisconsin Crop Record Book Manual
2. Addresses and prices for forage sampling
3. Charts for 1/100 of an acre for yield checks
4. Soil map of farm

F. Equipment:
1. Moisture tester
2. One hundred foot tape
3. Sack
4. Plastic sample bags
5. Penn State Forage Probe
6. Corn Yield check slide rule
7. Soil test probes
8. Soil sample bags

IV. Visit (October - November)

A. Teacher Objectives
1. Evaluate feed analysis and balance rations

B. Farm Operator Objectives:
1. Operator will realize the value of Feed Analysis in order to maximize profits.
2. Given the forms for balancing the ration and feed analysis the farm operator will balance the ration for protein, total digestable nutrients, calcium and phosphorus for his livestock enterprise.

C. On Farm Topic: Feed analysis and balancing the ration.
1. Review feed analysis
2. Interpret the results
3. Compare the results to a standard
4. Review present ration
5. Balance ration for protein, total digestable nutrients, calcium and phosphorus
6. Compare actual amounts of feed fed with standards

D. Assignments:
1. Add totals of income, expenses and depreciation
2. Bring depreciation schedule up to date

E. References:
1. Form for balancing rations
2. National Research Council nutritional feed requirements

F. Equipment:
1. Adding machine or calculator

V. Visit (November - December)

A. Teacher Objectives:
1. Assist the family in making an income tax estimate

B. Farm Operator Objectives:
1. Given his up-to-date farm records and an income tax estimate work sheet, the operator will be able to make an income tax estimate.
2. As a result of the estimate figures from the income tax work sheet, the operator will make adjustments for tax savings using the strategies suggested in the income tax management guide.

C. On Farm Topic: Farm tax estimate
1. Fill out farm income tax estimate worksheet
2. Suggest potential ways of adjusting taxable income

D. Assignment:
1. Follow recommended farm tax adjustments

E. References:
1. Income Tax Management for Farmers, North Central Regional Publication #2, 1972 Revision.
2. Tax estimate sheets, University of Wisconsin, Weigle & Luening.

F. Equipment:
1. Adding machine or calculator

VI. Visit (December - January)

A. Teacher Objective:
1. Assist the farm family in the entry of accurate and complete inventories of all crop, livestock and equipment.

B. Farm Operator Objectives:
1. Given an example of using farm inventories to determine financial progress the operator will appreciate the need for accurate inventories.
2. Given the necessary inventory form, operator will complete an inventory of his farm assets.

C. On Farm Topic: Inventory and Finalized Crop Production Records
   1. Inventory feed
   2. Inventory livestock
   3. Finalize crop production records

D. Assignment:
   1. Fill out early record analysis information sheet
   2. Start to fill out financial statement

E. References:
   1. Inventory sheets
   2. Wisconsin Farm Record Book
   3. Six-Year Inventory and Depreciation Schedule
   4. Example of a financial statement with computed results

F. Equipment:
   1. Adding machine or calculator

VII. Visit (January - February)

A. Teacher Objective:
   1. Given the necessary tax form and guide, the instructor will assist the operator in the completion of the farm income tax.

B. Farm Operator Objectives:
   1. Using last year's completed tax forms, updated farm tax guides, and tax consultant, the operator will file his current tax.

C. On Farm Topic: Income Tax
   1. Federal
   2. State
   3. Social Security
   4. Agricultural employees social security

D. Assignment:
   1. Fill out early record analysis information sheet
   2. List crop inputs

E. References:
   1. Schedule F
   2. Schedule D
   3. Schedule 1040
   4. Schedule 4797
   5. Schedule 3468 (investment credit)
   6. E & R - Misc.
   7. 943 - Social security, employers, annual tax return for agriculture employees
   8. Circular A, Agricultural employees tax guide
   9. Form SS-4: Application for employer identification number
   10. Request for statement of earnings, Form OAR-7044
   11. Social security tax for farmers
   12. Form 1065, partnership
   13. Farmers tax guide

E. Equipment:
   1. Adding machine or calculator

VIII. Visit (February - March)

A. Teacher Objectives:
1. Fill out and interpret the farm business and financial analysis, financial statement, and profit and loss.

B. Farm Operator Objectives:
1. Using farm inventories, crop production records, and operating records, the farm operator will complete a financial statement and profit and loss statement.
2. Using the results of these financial measures, the operator will evaluate his financial progress in relationship to profitable standards.

C. On Farm Topic: Farm Business Analysis
1. Compute business analysis

D. Assignment:
1. Fill out supporting schedules for financial statement
2. Complete financial statement
3. Gather information for crop planning

E. References:
1. Increasing Farm Income Through Farm Business Analysis and Planning on Specialized Dairy Farms - Department of Agriculture Economics.
2. Financial Statement - by Extension Economists - University of Wisconsin.
3. Farm profit and loss statement - by Extension Economists - University of Wisconsin.

F. Equipment:
1. Adding machine or calculator

IX. Visit (March - April)

A. Teacher Objectives:
1. To project crop and field plans for the coming crop year and relate to livestock needs.

B. Farm Operator Objectives:
1. Given a crop planning form, current soil analysis and dairy herd requirements reference sheet the farm operator will complete crop plan for the current operating year and select the most profitable inputs.

C. On Farm Topic: Crop Planning
1. Review farm conservation plan
2. Review and interpret soil tests
3. Livestock needs to drop production
4. Plan purchase of crop inputs

D. Assignment:
1. Fill out the supporting schedules for financial statement

E. References:
1. Crop planning form (Appendix E - Item 6)
2. Crop record book
3. Farm conservation plan
4. Plan purchase of crop inputs
5. Livestock needs to crop production sheet
6. Financial statement - by Extension Economists, University of Wisconsin

F. Equipment:
1. Adding machine or calculator

X. Visit (April - May)

A. Teacher Objective:
1. Evaluate the net worth structure.

B. Farm Operator Objective:
1. Using the supporting schedules of the financial statement the operator will figure his net worth, liquidity and solvency.

C. On Farm Topic:
1. Acquaint the farmer with the procedures at arriving at a financial statement.

D. Assignment:
1. Familiarize himself with:
   a. Cash flow
   b. Partial budget
   c. Long range plan

E. References:
1. Financial Statemsnt (by Extension Economists, University of Wisconsin)
2. Cash flow form
3. Partial budget form
4. Long range plan form

F. Equipment:

1. Adding machine or calculator

XI. Visit (May - June)

A. Teacher Objectives:
1. To familiarize the operator with the methods and tools to arrive at a maximizing profit point in farm production.

B. Farm Operator Objectives:
   1. Using profit and loss statement, financial statement, and other forms of records the operator will fill out partial budgets and/or a long range plan.
   2. Using the partial budgets and/or a long range plan the operator will make profit maximizing decisions.

C. On Farm Topic: Financial Planning

   1. Cash flow
   2. Partial budget
   3. Long range plan

D. Assignment:
   1. Check for proper plates on corn planter
   2. Calibrate planting and spraying equipment

E. References:
   1. Cash flow form
   2. Partial budget form
   3. Long Range Planning Forms 689, 690, 691 (University of Wisconsin)
   4. Farm Management Manual (University of Illinois)
   5. Wisconsin Farm Enterprise Budgets
      a. Dairy
      b. Swine
      c. Beef
      d. Sheep
      e. Crops

F. Equipment:
   1. Adding machine or calculator

XII. Visit (May - June - July)

A. Teacher Objectives:
   1. Evaluate time management in regard to getting field work and livestock work accomplished.
   2. Teach the operator how to identify, research and solve production problems.

B. Farm Operator Objectives:
   1. Given the listed references the farm operator will acquaint himself with crop, livestock, building, and machinery information to rpoduce crop and livestock outputs profitably.
   2. Using the listed reference materials, knowledge gained from the formal classroom sessions, the operator will think through and solve his production problems.
   3. Giving building guidelines, the farm operator will determine his livestock shelter requirements.

C. On Farm Topic: Trouble shooting field problems
   1. Selecting examples and using herbicides
   2. Adjusting plows
   3. Calibration planting and spraying equipment
   4. Determine plant populations
   5. Check for insects and diseases
   6. Check on weak problems
   7. Planning and evaluating building programs or remodeling.
   8. Plant deficiency symptoms
   9. Plan summer rations
   10. Cow analysis and selective matings
   11. Check milking
   12. Re-enroll operator

D. Assignment
   1. Perform and manage work as previously planned

E. References:
   1. Herbicide manual, insect and weed control manuals from University of Wisconsin
   2. Calibrating sprayer equipment bulletin - University of Wisconsin
   3. Mid-west Farm Plan Service - Buildings
   4. Profitable Soil Management - Soils Department, University of Wisconsin
   5. U.S.D.A. sire selection
   6. Insect and disease survey - State Department of Agriculture

F. Equipment:
   1. 100 ft. tape
   2. Camera
   3. Plastic bags
   4. Rubber bands and strings
   5. Clipboard
   6. Hand lens
   7. Enrollment forms

APPENDIX A

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BAILEY AGRICULTURAL MANAGEMENT LETTER
BIG FARMER
CROPS AND SOILS
DOANE'S AGRICULTURAL REPORT
DROVERS JOURNAL
FARM JOURNAL

FARM QUARTERLY
FARM TECHNOLOGY
THE FARMER
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APPENDIX B

Item 1

I. Net Farm Income (NFI).

Example

INCOME

(cash) Cash Operating Income	$28,000
(non-cash) Inventory Increase	1,250
(cash) Real Estate to Machinery Sold	none
(non-cash) Farm Produce Used at Home	250
	$29,500

EXPENSES

(cash) Cash Operating Expenses	$14,250
(non-cash) Inventory Decrease	none
(cash) Capital Purchase	3,000
(non-cash) Unpaid Family Labor	750
	$18,000

Total Credits Minus Total Debits = Net Farm Income (NFI).

$29,500 - $18,000 = $11,500

II. Labor and Management Earnings.

Add interest on equity investment to the debits or subtract interest on equity investment from NFI.

Example

INCOME

(cash) Cash Operating Income	$28,000
(non-cash) Inventory Increase	1,250
(cash) Real Estate and Machinery Sold	none
(non-cash) Farm Produce Used at Home	250
Total Credits	$29,500

EXPENSES

(cash) Cash Operating Expenses	$14,250
(non-cash) Inventory Decrease	none
(cash) Capital Purchase	3,000
(non-cash) Unpaid Family Labor	750
(non-cash) 6% Interest on Equity Investment ...	3,500
Total Debits	$21,500

APPENDIX B

Item 2

REFERENCE SHEET FOR LIVESTOCK NEEDS & FARM POTENTIAL FORM

DAIRY HERD REQUIREMENTS
(Inventory Disappearance)
Large Dairy Cow (1400# and Replacement)

LIBERAL FEEDING: High Forage Program @ 16,000# Milk 3.5 test.
2.5#DM/100#BW/cow/day = 35#DM/cow/day = 39#HE/cow/day. Daily Forage Intake
6.4TonDm/cow/yr = 7.1TonHe/cow/yr = 1/5 for young stock = 8.5TonHe/cow/year

LIBERAL FEEDING: High Grain Program @ 16,000# Milk 3.5 test.
2#Dm/100#BW/cow/day = 28#DM/cow/day = 31#HE/cow/day. Daily Forage Intake
5.2TonDm/cow/yr = 6.25TonHE/cow/yr + 1/5 for young stock = 7.TonHe/cow/year

NORMAL FEEDING: Lower Forage Program @ 12,000# Milk 3.5 test.
Forage, same as liberal feeding on high grain program.
Lower production is due to grain fed at a lower rate.

FORAGE FEEDING SYSTEMS

LIBERAL FEEDING - HIGH FORAGE RATION			LIBERAL FEEDING HIGH GRAIN RATIONS and NORMAL FEEDING - LOWER FORAGE RATION		
1. One Forage Feeding System	: or:	8.5 ton hay 18.8 ton haylage 25.6 ton C.silage	1. One Forage Feeding System	: or:	6.9 ton hay 15.4 ton haylage 20.85 ton C.silage
2. 2/3 Hay & 1/3 C.sil System	: or:	5.7 ton hay & 8.5 ton C.silage 12.6 ton haylage & 8.5 ton C.silage	2. 2/3 Hay & 1/3 C.sil. System	: or:	4.6 ton hay & 6.9 ton C.silage 10.2 ton haylage & 6.9 ton C.silage
3. 1/2 Hay & 1/2 C.sil. System	: or:	4.3 ton hay & 12.8 ton C.silage 9.5 ton haylage & 12.8 ton C.silage	3. 1/2 Hay & 1/2 C.sil. System	: or:	3.5 ton hay & 10. ton C.silage 7.7 ton haylage & 10. ton C.silage
4. 1/3 Hay & 2/3 C.sil. System	: or:	2.8 ton hay & 17.1 ton C.silage 6.3 ton haylage & 17.1 ton C.silage	4. 1/3 Hay & 2/3 C.sil. System	: or:	2.3 ton hay & 13.9 ton C.silage 5.1 ton haylage & 13.9 ton C.silage

*Haylage on a 50% Moisture Basis.
Note: Quality influences amount consumed & nutrients per unit.

GRAIN FEEDING HIGH FORAGE RATION (Includes Young Stock Needs)

12000# Milk Level = 3900# of Corn Equivalent Annually = (70 Bu/Cow)
14000# Milk Level = 4700# of Corn Equivalent Annually = (84 Bu/Cow)
16000# Milk Level = 5400# of Corn Equivalent Annually = (96 Bu/Cow)

GRAIN FEEDING HIGH GRAIN RATION (Includes Young Stock Needs)

12000# Milk Level = 5400# of Corn Equivalent Annually = (91 Bu/Cow)
14000# Milk Level = 6000# of Corn Equivalent Annually = (107 Bu/Cow)
16000# Milk Level = 7500# of Corn Equivalent Annually = (134 Bu/Cow)

FORAGE CONVERSION FACTORS

D.M.	Hay Equiv.	Haylage			Silage
D.M.	12% Moist.	40% Moist.	50% Moist.	60% Moist.	70% Moist.
.88 Ton =	1 Ton =	1.5 Ton =	1.75 Ton =	2.25 Ton =	3 Ton

Appendix C

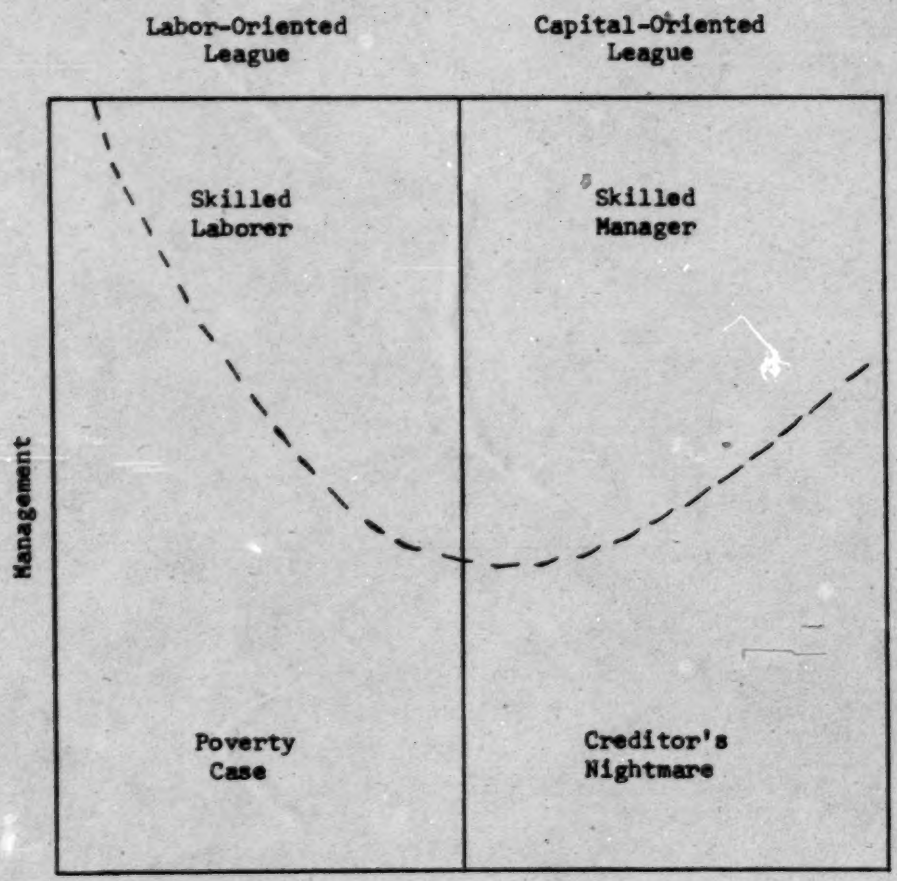

Figure 1

Farmer Adjustment: The Labor and Capital Leagues.

Appendix C

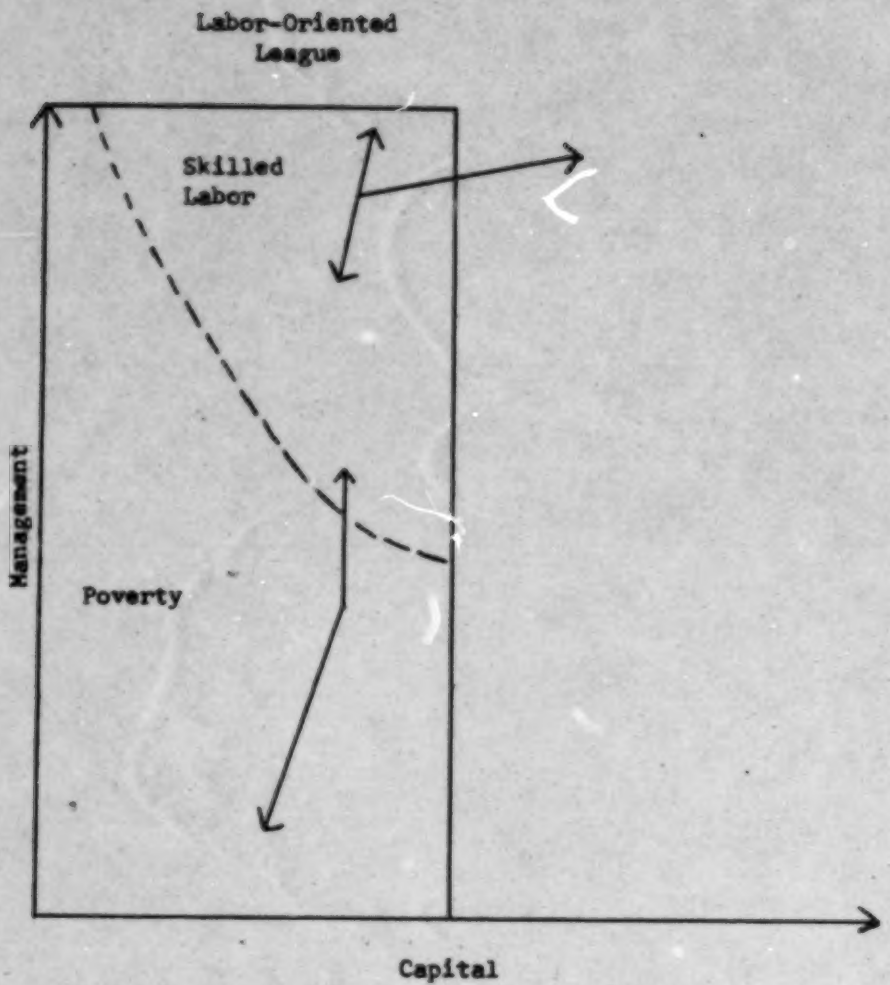

Figure 2

Appendix C

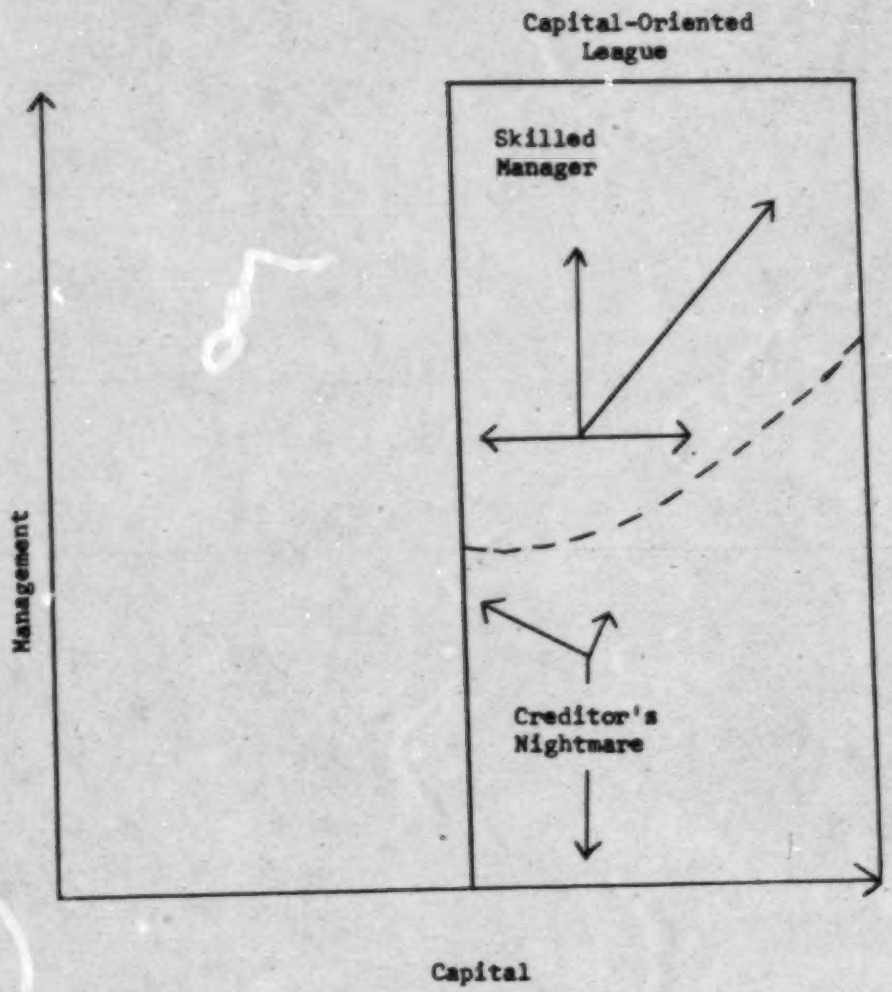

Figure 3

Appendix C

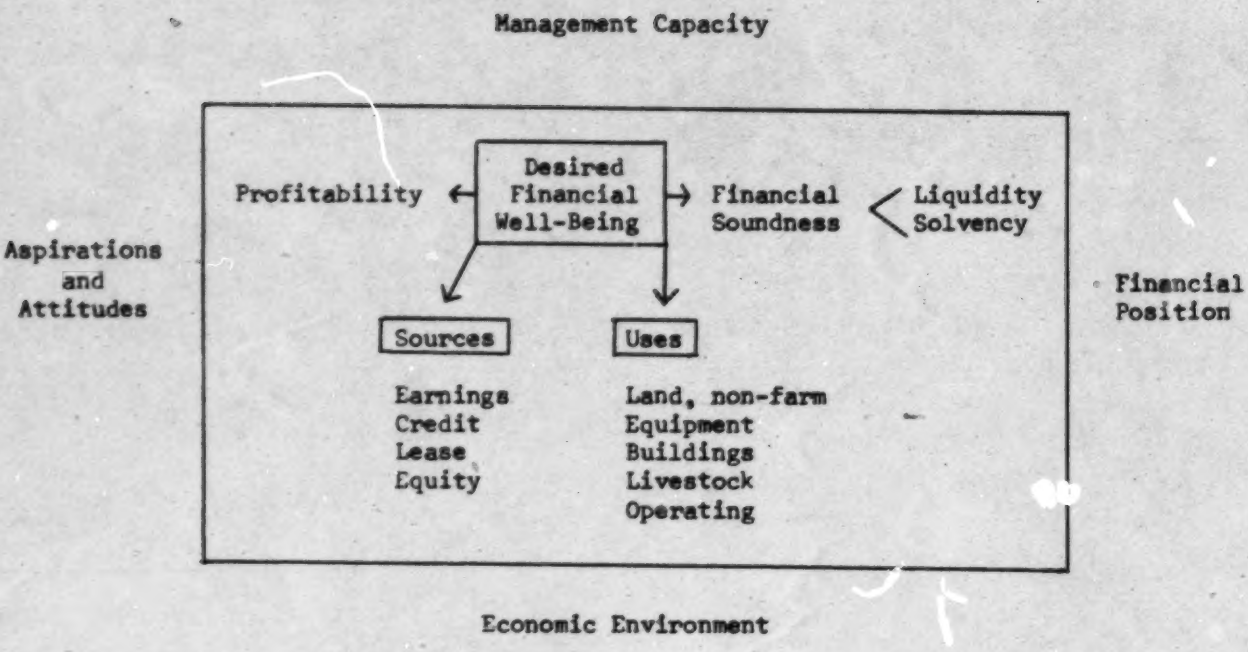

Figure 4

Financial Management Decision Framework.

Appendix C

Type of Farm	Southern Minnesota		Northern Minnesota	
	1968	1969	1968	1969
Cash crop	5.7	7.5	6.9	6.4
Dairy	7.3	8.6	5.6	5.1
Dairy and hogs	8.6	12.3		
Dairy and cash crop	6.8	7.0		
Dairy, hogs, cash crop	10.0	8.9	7.7	7.2
Hogs--complete program	8.4	18.4		
Hogs and feeder cattle	8.5	13.8		
Hogs and cash crops	6.8	10.7		
Hog (finish), cash crop	7.2	9.9		
Hogs, feeder cattle, cash crop	8.9	10.9		
Feeder cattle and cash crops	7.4	8.1		

Table 1

Rate Earned on Capital Managed by Type of Farm and Area of State, Minnesota, 1968-1969

Appendix C

Type of Farm	1/3 Low Income Farms[3/]	Average Income Farms[3/]	1/3 High Income Farms[3/]
Dairy farms			
Less Than 30 Cows	- 1.8	1.4	8.6
30-55 Cows	0.1	4.5	11.3
Over 55 Cows	2.8	5.9	10.3
Crop farms	-14.1	2.9	12.9
Hog farms	- 2.8	6.0	12.2

Table 2

Rate Earned on Investment[1/] by Type of Farm on Selected Wisconsin Farms, 1968-70 Average[2/].

Source: Wisconsin Farm Business Summaries, Department of Agricultural Economics, Univereity of Wisconsin and Agricultural Records Cooperative.

1/
Land valued at purchase cost--the value of rented land not included.

2/
Measured by this formula: [Net Cash Income $\begin{matrix}+\text{Inventory Increase} \\ -\text{Inventory Decrease}\end{matrix}$ + Farm Interest Paid) - ($4,800 + 8% of Value of Farm Production + Value of Unpaid Family Labor)] - Total Capital Investment = Return to Total Farm Investment.

3/
Sorted by labor income.

Appendix C

Type of Farm	1/3 Low Income Farms[3/]	Average Income Farms[3/]	1/3 High Income Farms[3/]
Dairy			
Under 30 cows	3.0	2.4	2.1
30-55 cows	3.0	2.5	2.2
Over 55 cows	3.1	2.6	2.3
Crop farms	3.3	2.0	1.7
Hog farms	2.4	2.3	2.2

Table 3

Rate of Asset[1/] Turnover[2/] on Selected Wisconsin Farms by Type of Farm and Level of Profitability, 1968-70 Average.

Source: Wisconsin Farm Business Summaries, Department of Agricultural Economics, University of Wisconsin and Agricultural Records Cooperative.

1/ Land valued at purchase cost--the value of rented land is not included.

2/ Measured by this formula: Total Farm Investment ÷ Value of Farm Production = Asset Turnover.

3/ Sorted by labor income.

Appendix C

Rate of	15	15.6	17.6	21.0	29.0	69.0
Return	12	12.3	13.3	15.0	19.0	39.0
On	9	9.0	9.0	9.0	9.0	9.0
Average Farm	6	5.7	4.7	3.0	- 1.0	-21.0
Investment	3	2.3	.4	-3.0	-11.0	-51.0
%		10	30	50	70	90

Table 4

Percent Return on Net Worth at 9 Percent Debt Interest and With Varying Rates of Return on Farm Investment and Levels of Indebtedness.

Name _____

Appendix D

Worksheet MIECF

For Period

_____ to _____

MONTHLY INCOME AND EXPENSE
CASH FLOW

INCOME - Months:	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1 Milk												
2 Cows & Calves												
3 Other Farm Produce												
4 Misc. Income												
5 Misc. Income												
6 TOTAL CASH INCOME												
EXPENSES												
7 Interest												
8 Feed Purchased												
9 Mach. Repair												
10 Gas & Oil (Farm)												
11 Auto & Trk. (Farm)												
12 Elect. & Tele. (Farm)												
13 Milk Hauling												
14 Livestock Exp.												
15 Hired Labor												
16 Fertilizer												
17 Seed												
18 Bldg. & Fence Rpr.												
19 R.E. & R.D. Taxes												
20 Farm Insurance												
21 Custom Work												
22 Rent												
23 Misc. Supplies, Etc.												
24 TOTAL EXPENSES												
25 Capital Expenditures												
26 TOTAL ALL EXPENSE												
27 Family Living Exp.												
28 Loan Repayment												
29 Cash position												
30 Accumulated Borrowings												

Appendix D

PARTIAL BUDGET FOR _____ (Proposed Plan)

Worksheet PB

CREDIT — Added Return and/or Reduced Cost

Added Return	Profitability Annual Return	Repayment Capacity
Added Income From Proposed Plan		
_____	$_____	$_____
_____	$_____	$_____
_____	$_____	$_____
Total Annual Added Returns (1a)	$_____	$_____
Reduced Cost		
Reduction in Cost From Proposed Plan		
_____	$_____	$_____
_____	$_____	$_____
_____	$_____	$_____
Total Annual Reduced Cost (2a)	$_____ (2b)	$_____
TOTAL CREDITS (1 + 2) (3a)	$_____ (3b)	$_____

DEBIT — Added Cost and/or Reduced Return

Added Cost	Profitability Annual Costs	Repayment Capacity
New Investment and Added Annual Investment Costs From Proposed Plan		
_____	$_____	$_____
_____	$_____	$_____
_____	$_____	$_____
Total Added Annual Investment Cost (4a)	$_____ (4b)	$_____
Added Annual Operating Costs From Proposed Change		
_____	$_____	$_____
_____	$_____	$_____
_____	$_____	$_____
Total Added Annual Operating Costs (5a)	$_____ (5b)	$_____
Reduced Return		
Reduced Income From Proposed Plan		
_____	$_____	$_____
_____	$_____	$_____
Total Annual Reduced Return (6a)	$_____ (6b)	$_____
TOTAL DEBITS (4 + 5 + 6) (7a)	$_____ (7b)	$_____

FINANCIAL ANALYSIS

(9) Total Added Investment $_____

(10) Returns/$ Added Investment (8a ÷ 9) _____

(11) Years Required to Pay Back (9 ÷ 8b) _____ Yrs.

$_____ (3a) Total Credits | $_____ (7a) Total Debits

(8a) CHANGE IN NET INCOME $_____ (3a-7a)

$_____ (3b) | $_____ (7b)

(8b) CHANGE IN NET INCOME $_____ (3b-7b)

R. A. Luening
Farm Records Specialist
University of Wisconsin Ext.

Appendix E

Item 1

MAJOR PROGRAM OBJECTIVES

(Competencies Necessary to Successfully Manage a Farm Operation)

I. To manage most profitably Land, Labor and Capital.

A. Plan and implement a soil management program which would be the most profitable use of land consistent with sound conservation practices on the farm.

B. Plan and implement the most profitable crop production program for each individual crop on the farm.

C. Plan and implement the most profitable livestock enterprises for their farm operations.

D. Coordinate crop production enterprises with the livestock enterprises of the farm.

E. Plan and implement the most profitable use of existing buildings and/or remodel existing buildings or build new buildings on the farm.

F. Plan and implement the most profitable use of farm machinery in the farm operation.

G. Plan and implement a financial program for the farm.

H. Plan and implement a farm income tax management program.

I. Plan and implement a profitable method to effectively market farm products.

FARM SURVEY SHEET Yr 1 2 3 4 5

Appendix E - Item 2 Date_____

Name_____ Address_____
Date of Birth_____ Soc. Sec. No._____ Age_____
Farm Location Co_____ TWP_____ SEC_____ TEL._____ School Dist._____
Wife's Name_____ Children & Ages_____
Farm Experience_____ Where_____ Highest Grade Comp._____
Voc Agri_____ FFA_____ Degrees_____ Special Courses_____
Where do you do your major grocery shopping?_____ Clothing_____
Gas & Oil_____ Machinery_____ Fertilizer_____ Mach. Rep._____

Membership in Organizations (check)

Farm Bureau	[ ]	Kiwanis	[ ]	4-H Leaders	[ ]	Breed Assocs.	
Farmers Union	[ ]	Potary	[ ]	Pork Producers	[ ]		_____
NFO	[ ]	Lions	[ ]	State Assoc.	[ ]		_____
Co-op	[ ]	Community Club	[ ]	DHL	[ ]		_____
Grange	[ ]	TWP Office	[ ]	_____Other	[ ]		_____

Farm Information

Total Acres___ CA___ Pas.___ Bldgs.___ Marsh___ Wet Land___ Woods_____
Soil Types, Acres of Class I_____ Class II_____ Class III_____ Class IV_____
Class V_____ Class VI_____ Class VII_____ Class VIII_____

Information can be taken from conservation plan or county soil maps.
When was the last soil test?_____ Tilling Needs_____ Tons Fert. Used_____
Annually_____

Crops Grown

Corn_____Acres
Oats_____Acres
Hay_____Acres
Clover_____Acres
Marsh_____Acres
Pasture_____Acres

Livestock

Dairy Cows_____
Bred Heifers_____
Open Heifers_____
Sows_____
Feeder Pigs_____
Pigs Fed Out_____

Steers Raised___
Steers Fed Out___
Beef Cows_____
Other_____
Other_____
Other_____

Do you participate with ASCS?_____ Feed Grain Base_____ Acreage_____

Livestock Shelter Adequate_____ Feed Storage Adequate_____

Areas in which improvement is desired, livestock_____

Crops_____ Machinery_____

Lbs. of Milk Sold Per Cow Last Year_____ F.F. Ave._____

Type of Records Used (Hand)_____ ARC_____ Agrifax_____ Bank Checks_____

Magazines Subscribed to_____

_____

Appendix E

Item 3

NEEDS: FERTILITY ANALYSIS

Crop	Herd Needs or Ton or Bu. Produced	Nitrogen	P_2O_5	K_2O
Corn Silage	_____	.....	.....	.....
Ear Corn	_____	.....	.....	.....
Hay-Legumes	_____	.XXX.	.....	.....
Grass	_____	.....	.....	.....
Grain	_____	.....	.....	.....
Other	_____	.....	.....	.....
Total (Gross Removal)		.....	.....	.....
Manure Credits (Subtract)		-.....	-.....	-.....
Net Loss of Nutrients		.....	.....	.....
Cost/Nutrient Unit		x.....	x.....	x.....
		_____ +	_____ +	_____ =
			TOTAL COST	_____
		Total Cost ÷ Acres =	Cost/Acre	_____

NEEDS: HERD MAKE-UP

Milk Cows	Cows in Milk	Cows Dry	Heifers 10 Mos. to Fresh	Calves 6 Wks. to 10 Mos.	Calves to 6 Wks.	Total Herd Number

These forms developed by Robert Mahoney and Clarence Grundahl.

Appendix E

Item 4 Date_____

LIVESTOCK NEEDS & FARM POTENTIAL FORM
Related to Level of Production

NEEDS: CROPS RAISED			Herd Needs		Yield/ Acre		Acres Needed	Acres of Crop
Hay	....T/Cow	X ....Cows =	_____Tons	÷	....T/A	=	_____Acres	
Haylage	....T/Cow	X ....Cows =	_____Tons	÷	....T/A	=	_____Acres	....Hay
Corn Sil.	....T/Cow	X ....Cows =	_____Tons	÷	....T/A	=	_____Acres	
Ear Corn	....Bu/Cow	X ....Cows =	_____Bu.	÷	....Bu/A	=	_____Acres	....Corn
* Oats (Nurse crop)	....Bu/Cow	X ....Cows =	.....Bu.	=	....Bu/A	X	_____Acres	....Grain
Grain (or other)	....Bu/Cow	X ....Cows =	_____Bu.	÷	....Bu/A	=	_____Acres	....Other
Total Acres	....÷....	#Cows = ...	Acres/Cow				_____TOTAL ACRES	

* (Nurse Crop) Figure Reseeding Acreage Needed & Work Backward

NEEDS: PURCHASED				
**44% Prot. Equivalent	1200#/Cow x .....Cows =	_____Tons	.....	.....
Salt	90#/Cow x .....Cows =	_____Tons	.....	.....
Mineral (17x17) Equiv.	180#/Cow x .....Cows =	_____Tons	.....	.....
Other	....#/Cow x .....Cows =	_____Tons	.....	.....
	....#/Cow x .....Cows =	_____Tons	.....	.....

NEEDS: STORAGE CAPACITY	Corn Silage	50% Moist. Haylage	Hi-Moisture Shell Corn	Hi-Moisture Ear Corn
Silo #1 (x)	.....	.....	.....	.....
Silo #2 (x)	.....	.....	.....	.....
Silo #3 (x)	.....	.....	.....	.....
Silo #4 (x)	.....	.....	.....	.....

Hay storage capacity needed	Cubic Feet Needed
Baled Tight 240-300 Cu. Ft/Ton	
Baled Loose 300-360 Cu. Ft/Ton	.....
Chopped Fine 300-360 Cu. Ft/Ton	
Chopped Long 330-400 Cu. Ft/Ton	.....

Grain Storage - Cubic Feet of Bin Space x .8 = Bushel Capacity .....Bu.

Cubic Feet of Bin Space Needed ....Bu. x 1.25 = Cu. Ft. Needed .....

**Recommend testing of forages to reduce purchased feed costs.
This FORM can be used at any time of year to plan feed needs.

Appendix E

Item 5

HERD MAKE-UP: (Based on 12-13 Mos. Calving Interval)

TOTAL MILK COWS	36	48	60	72	84	96
5/6 of Total = Cows in Milk	30	40	50	60	70	80
1/6 of Total = Dry Cows	6	8	10	12	14	16
1/2 of Total = Heifers (10 Months to Fresh)	18-22	24-30	30-37	36-45	42-52	48-60
1/4 to 1/3 of Total = Calves (6 Wks. to 10 Mos.)	9-12	12-16	15-20	18-24	21-28	24-32
1/8 to 1/6 of Total = Calves (Birth to 6 Wks.)	4-6	6-8	8-10	9-12	10-14	12-16
TOTAL NUMBER IN HERD	72	96	120	144	168	192

FERTILITY REMOVAL BY CROPS: (In #'s as Indicated)

Crop		N	P_2O_5	K_2O
Alfalfa:	(Per Ton)	Legume	10	45
Grass:	(Per Ton)	24	10	28
Corn Silage:	(/Ton @ 70% Moisture)	10	4	8
	(15 Ton/Acre)	150	60	120
Ear Corn:	(Per Bu.)	.90	.35	.25
	(100 Bu./Acre)	90	35	25
Oats:	(Per Bu. of Grain, Includes Straw	.9	.4	1.2
	(Grain 80 Bu. Yield)	50	20	15
	(Straw 2 Ton)	25	15	80
Soybeans:	(Grain 40 Bu.)	Legume	35	55
	(Straw)	Legume	15	20
Barley:	(Grain 40 Bu.)	35	15	10
	(Straw 1 Ton)	15	5	30
Red Clover:	(Per Ton)	Legume	10	40

* Manure Credits: (With 'N' loss, #s/Ton)
Wet Manure: (No 'N' loss, #s/Ton)
* Dairy cattle produce 12 ton of wet manure/cow/year @ 50% loss - 6 T/cow.

ESTIMATING VOLUME CAPACITIES:

Ear Corn: (17% Mosture, Old) Cubic Feet x 0.4 x 1. = Bushels
Ear Corn: (30% Moisture, New) Cubic Feet x 0.4 x 0.8 Bushels
Hay, Baled: Cu.Ft./Ton, Loose Baled 300-360, Tight 240-300
Hay, Chopped: Cu.Ft./Ton, 2" cut 300-360, 4" cut 330-400
Silage: (A Close Approximation of Capacity) weight/cu.ft. by height
30'=42 lbs., 40'=47 lbs., 50'=52 lbs., 60'=56 lbs., 70'=60 lbs.

Note: Allowances are made for waste-spoilage=shrink=estimating yields, and other human factors.

USE WISCONSIN CROP RECORD BOOK FOR ACURACY.

Appendix E

Item 5 Continued

Type of Feeding Program	Needs	Raised
Sow and Two Litters to Weaning		
2100 lbs. Corn = 37.5 Bushels	____	____ T.
72 lbs. Oats = 2 Bushels	____	____
64 lbs. Hay	____	____
582 lbs. Protein and Mineral	____	____
400 lbs. Pig Starter	____	____
Sow and Two Litters to Market, 15.6 Hogs to Market Per Sow		
9873 lbs. Corn = 176.3 Bushels	____	____
72 lbs. Oats = 2 Bushels	____	____
1933 lbs. Protein and Mineral	____	____
400 lbs. Pig Starter	____	____
Sow and One Litter to Weaning, 7 Pigs		
1141 lbs. Corn = 20.4 Bushels	____	____
72 obs. Oats = 2 Bushels	____	____
360 lbs. Protein and Mineral	____	____
200 lbs. Pig Starter	____	____
Feeder Pigs 3.3 lbs. Feed/lb. Grain Purchased @ 40¢		
Shelled Corn 500 lbs. = 8.9 Bushels	____	____
Protein 85 lbs. - 40% Equivalent	____	____
Mineral Mix 8 lbs.	____	____

This data compiled by Robert Mahoney and Clarence Grundahl.

Appendix E - Item 6 CROP ROTATION PLANNING SHEET

Year: 19__ Year: 19__

Field	Acres	Available Phosphorus	Available Potash	Corn	Oats	Hay	Diverted	Waste or Pasture	Fertilizer Row Top Dress	Manure	Herbicide	Insecticides	Corn	Oats	Hay	Diverted	Waste or Pasture	Fertilizer Row Top Dress	Manure	Herbicide	Insecticides
Totals																					

Yield

Used

Fertilizer

MANAGING

OUR

FINANCIAL

FUTURE

COMPARATIVE

TREND ANALYSIS --

AGRICULTURE

Name: _____

Address: _____

Years Covered: 19__ to 19 __

Developed by Extension Economists
Farm Management
Department of Agricultural and Applied Economics

Agricultural Extension Service
University of Minnesota
U.S. Department of Agriculture

Cooperative Extension Programs
University Extension
University of Wisconsin

COMPARATIVE TREND ANALYSIS - AGRICULTURE

Business Description	19__	19__	19__
1. Total tillable acres			
2. Kind and number of major livestock (_____)			
3. Total hours of labor			
4. Total farm investment			
5. _____			
Business Profitability			
6. Farm profit and loss			
7. Labor and management earnings			
8. Rate of return on average farm copital			
9. Rate of return on net worth			
10. Net profit margin			
11. Asset turnover			
Production Efficiency - Crops			
12. Percent of land tillable			
13. Percent of tillable land in row crop			
14. Corn, bu./acre			
15. _____			
16. _____			
17. _____			
Production Efficiency - Livestock			
1 Pounds milk sold per cow			
19. _____			
20. _____			
21. _____			
Business Financial Soundness - Liquidity			
22. Cash generated for non-real estate debt			
23. Years to repay existing non-real estate debt			
24. Current liability/asset ratio			
25. Capital replacement and expansion capacity			
26. Value of inventory adjustment			
27. Family living			
Business Financial Soundness - Solvency			
28. Current assets			
29. Intermediate assets			
30. Long-term assets			
31. Total assets			
32. Current liabilities			
33. Intermediate liabilities			
34. Long-term liabilities			
35. Total liabilities			
36. Total net worth			
37. Change in net worth			
38. Current and intermediate liability/asset ratio			
39. Long-term liability/asset ratio			
40. Total liability/asset ratio			

COMPARATIVE TREND ANALYSIS - AGRICULTURE

	19__	19__	19__	19__	19__
1.					
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